

The impact of size on particle drainage dynamics and antibody response

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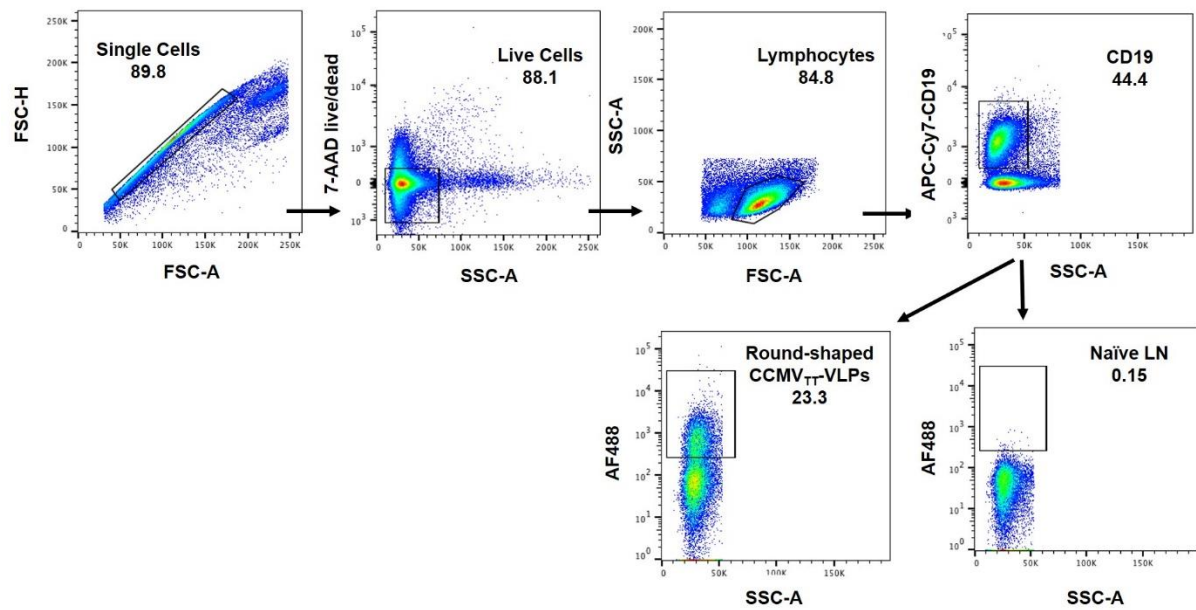
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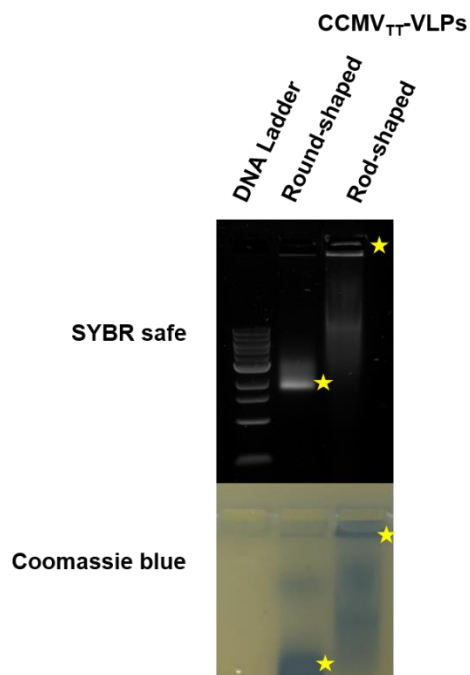
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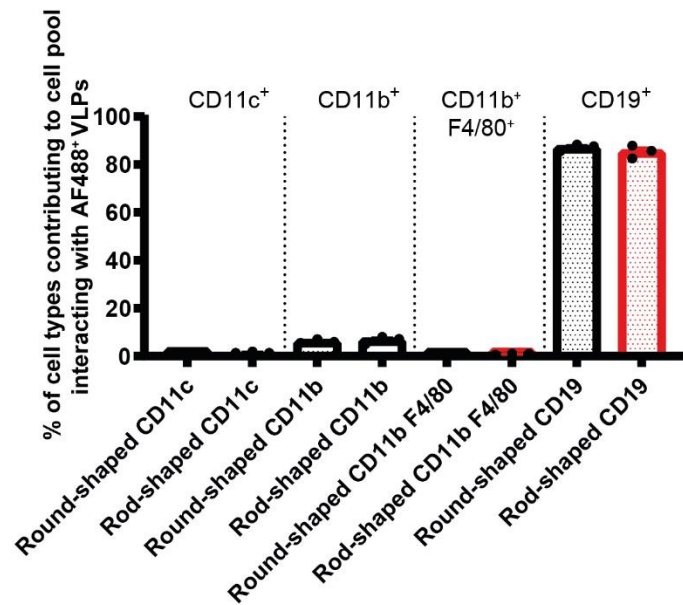
Supplementary Figures.



Supplementary Figure 1: Gating strategy. Cells were gated on single cells, live cells, lymphocytes, cell line marker (here exemplary CD19⁺), AF488-CCMV_{TT}-VLP⁺.

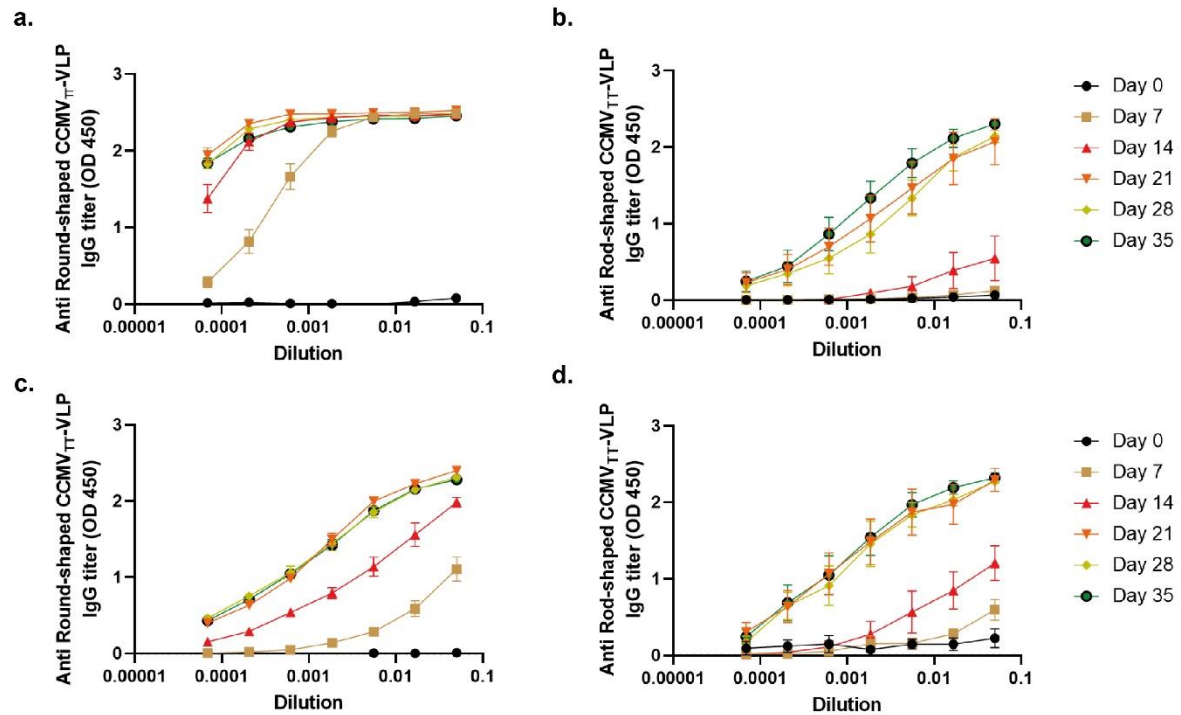


Supplementary Figure 2: Round or Rod-shaped CCMV_{TT}-VLPs incorporate bacterial RNA. (top) 1% agarose gel of Round- and Rod-shaped CCMV_{TT}-VLPs visualized with SYBR safe, (bottom) Coomassie blue staining of same agarose gel, yellow stars indicating location of bands (top and bottom)

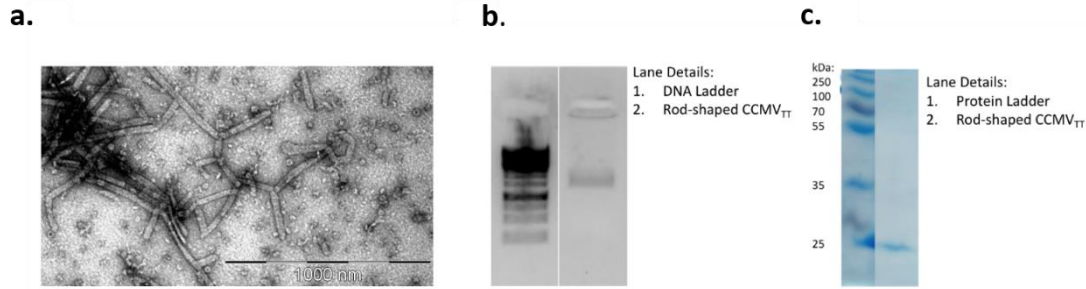


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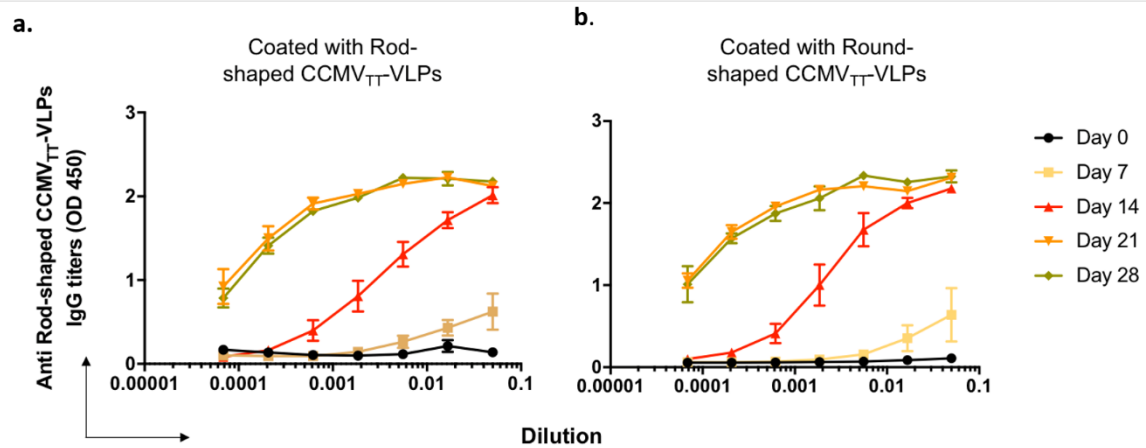
11 **Supplementary Figure 3: Percentage of cell types interacting with CCMV_{TT}-VLPs.** Murine popliteal
 12 lymph nodes were taken 3h after injection of Round- or Rod-shaped CCMV_{TT}-VLPs and cells were
 13 gated for live, single cells interacting with AF488⁺ VLPs. Graph shows percentage of different cell types
 14 within this VLP⁺ population. Mean \pm SEM, 3 mice per group.



Supplementary Figure 4: Round shaped CCMV-TT-VLPs are more potent in inducing IgG antibodies than Rod-shaped CCMV-TT-VLPs. **a**, Sera from Round-shaped CCMV-TT-VLP vaccinated mice, ELISA plates coated with Round-shaped CCMV-TT-VLPs. **b**, Sera from Rod-shaped CCMV-TT-VLP vaccinated mice, ELISA plates coated with Rod-shaped CCMV-TT-VLPs. **c**, Sera from Round-shaped CCMV-TT-VLP vaccinated mice, ELISA plates coated with Rod-shaped CCMV-TT-VLPs. **d**, Sera from Rod-shaped CCMV-TT-VLP vaccinated mice, ELISA plates coated with Round-shaped CCMV-TT-VLPs. Mean \pm SEM, 6 mice per group, one representative of 2 similar experiments is shown.



Supplementary Figure 5: Directional insertion of tetanus toxoid (TT) epitope in the N or C-terminal results in Round or Rod-shaped CCMV_{TT}-VLPs. **a**, EM of Rod-shaped CCMV_{TT}-VLPs with variable fragmented pieces, adsorbed on carbon grids and negatively stained with uranyl acetate solution, scale bars 1000nm. **b**, Agarose gel stained with SYBR safe, lane 1: DNA ladder, lane 2: Rod-shaped CCMV_{TT}. **c**, Reducing SDS-Page stained with coomassie-blue stain, lane 1: protein marker, lane 2: Rod-shaped CCMV_{TT}.



Supplementary Figure 6: Round-shaped CCMV_{TT}-VLPs are more potent in inducing IgG antibodies than Rod-shaped CCMV_{TT}-VLPs. **a**, Anti Rod-shaped CCMV_{TT}-VLPs IgG titers, ELISA plates coated with Rod-shaped CCMV_{TT}-VLPs. **b**, Anti Rod-shaped CCMV_{TT}-VLPs IgG titers, ELISA plates coated with Round-shaped CCMV_{TT}-VLPs. Mean \pm SEM, 3 mice per group, one representative of 2 similar experiments is shown.